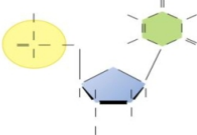


Name _____

Date _____

Period _____

DNA & Replication Worksheet

1. Write out the complete name for DNA: _____
2. A nucleotide is made of three parts: a _____ group, a five carbon _____, and a nitrogen containing _____. Label these three parts on the diagram to the right:

3. In a single strand of DNA, the phosphate group binds to the _____ of the next group.
4. The 5' end of a single DNA strand contains a free _____, while the 3' end contains a free _____.
5. DNA was not thought to be the genetic blueprint originally; instead many scientists hypothesized that _____ contained the genetic code and blueprint of life. (They were later proven wrong.)
6. Purines have _____ rings, and pyrimidines have _____ ring.
7. Check each of the following statements that are true with regard to Griffith's experiments.
 Griffith discovered transformation in bacteria.
 Mice injected with non-encapsulated bacteria quickly became sick and died.
 Encapsulated bacteria can become "naked" bacteria.
 Bacteria that are naked tend to be harmless.
 Naked bacteria can develop a capsule only after exposure to the DNA of encapsulated bacteria.
 Griffith's transforming factor was the protein in the capsule.
 Heating the encapsulated bacteria preventing transformation of the naked variety.
 Transformation allows bacteria to acquire new genes.
 Enzymes that destroyed DNA would prevent transformation.
8. Check each of the following statements that are true with regard to the Hershey-Chase experiment.
 DNA was labeled with radioactive phosphorous.
 Protein was not labeled.
 Radioactive sulfur was found in the offspring phages after they emerged from the cell.
 Phage proteins were not transmitted to host cell or to offspring.
9. Chargaff's rule states that the DNA of any species contains equal amounts of _____ & _____ and also equal amounts of _____ & _____.
10. Wilson and Franklin studied the structure of DNA using _____ and determined that the shape of the molecule was a _____.
11. James Watson and Francis Crick amended Franklin and Wilson's conclusions and determined that the shape of the molecule was instead a _____.
12. Name the scientist(s) responsible for each of the following discoveries.
_____ Bacterial transformation
_____ The base-pair rule
_____ DNA was the hereditary material of viruses
_____ The shape of DNA was a helix
_____ The shape of DNA was a double helix
13. In DNA, thymine is complementary to _____; cytosine is complementary to _____.